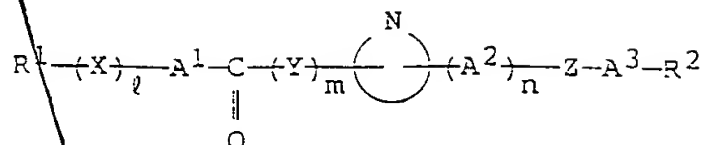


What we claim is :

1. A compound of the formula :



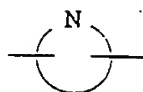
wherein R^1 is N-containing cycloalkyl which may have one or more suitable substituent(s),

R^2 is carboxy or protected carboxy,

A^1 is lower alkylene, lower alkanyl-ylidene or lower alkenylene, each of which may have one or more suitable substituent(s),

A^2 is lower alkylene,

A^3 is lower alkylene which may have one or more suitable substituent(s),



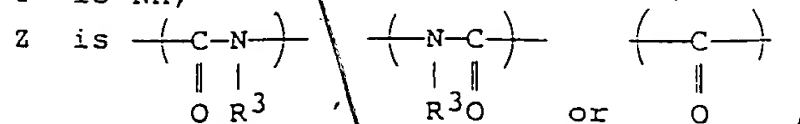
is a group of the formula:



(wherein --- is N-containing heterocyclic group which may have one or more suitable substituent(s)),

X is O, S or NH,

Y is NH,



(wherein R^3 is hydrogen or lower alkyl),

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l, m and n are each the same or different an integer of 0 or 1, and a pharmaceutically acceptable salt thereof.

2. A compound of claim 1,

wherein R¹ is 3 to 8 membered cycloalkyl containing 1 to 3 nitrogen atom(s) which may have one or more suitable substituent(s),

R² is carboxy or esterified carboxy,

A¹ is lower alkylene, lower alkanyl-ylidene or lower alkenylene, each of which may have one or more suitable substituent(s),

A² is lower alkylene,

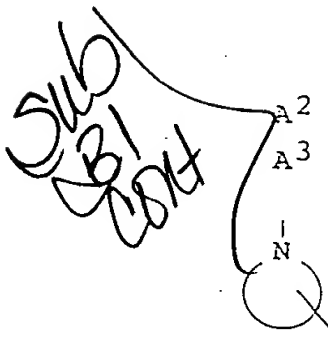
A³ is lower alkylene which may have one or more suitable substituent(s),

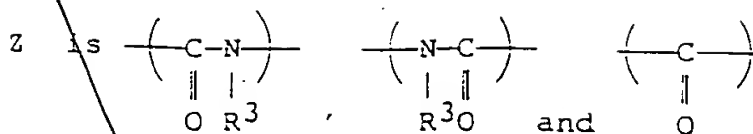
is saturated 3 to 8 membered heteromonocyclic group containing 1 to 4 nitrogen atom(s) which may have one or more suitable substituent(s), unsaturated condensed heterocyclic group containing 1 to 4 nitrogen atom(s) which may have one or more suitable substituent(s) or saturated 3 to 8-membered heteromonocyclic group containing 1 to 2 oxygen atom(s) and 1 to 3 nitrogen atom(s) which may have one or more suitable substituent(s),

X is O, S, or NH,

Y is NH,

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(wherein R^3 is hydrogen or lower alkyl),

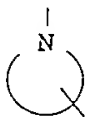
l is an integer of 0 or 1,

m is an integer of 0 or 1,

n is an integer of 0 or 1.

3. A compound of claim 2,

wherein R^1 is piperidyl which may have 1 or 2 oxo
or [5-(lower)alkyl-2-oxo-1,3-dioxol-
4-yl](lower)alkyl,



is piperidyl, morpholinyl,
tetrahydroquinolyl or
pyrrolydinyl,

A^3 is lower alkylene which may have 1 to 3
suitable substituent(s) selected from
the group consisting of (C1-C6)alkyl;
(C2-C6)alkenyl; (C2-C6)alkynyl;
phenyl; phenyl(C1-C6)alkyl; phenyl(C1-
C6)alkyl having 1 to 4 (C1-C6)alkoxy,
halo(C1-C6)alkyl or (C1-C6)alkylene
dioxy; (C1-C6)alkyl having unsaturated
condensed heterocyclic group
containing 1 to 4 nitrogen atom(s);
cyano; amino; protected amino;
and phenyl(C1-C6)alkylcarbonyl;

R^2 , R^3 , A^1 , A^2 , X , Y or Z are each as defined
in claim 2,

l is an integer of 0,

m is an integer of 0,

n is an integer of 0.

4. A compound of claim 3,

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cont

wherein R¹ is piperidyl which may have 1 or 2 oxo
or [5-(lower)alkyl-2-oxo-1,3-dioxol-
4-yl](lower)alkyl,



is piperidyl, morpholinyl,
tetrahydroquinolyl or
pyrrolidyl,

A³ is lower alkylene which may have 1 to 3
suitable substituent(s) selected from
the group consisting of (C1-C6)alkyl;
(C2-C6)alkenyl; (C2-C6)alkynyl;
phenyl; phenyl(C1-C6)alkyl; phenyl(C1-
C6)alkyl having 1 to 4 (C1-C6)alkoxy,
halo(C1-C6)alkyl or (C1-C6)alkylene
dioxy; (C1-C6)alkyl having unsaturated
condensed heterocyclic group
containing 1 to 4 nitrogen atom(s);
cyano; amino; (C1-C6)alkanoylamino;
aroylamino which may have 1 to 3
hydroxy; (C1-C6)alkoxy, halogen or
phenyl; cyclo(C3-
C6)alkylcarbonylamino; (C1-
C6)alkoxy(C1-C6)alkylcarbonylamino;
(C2-C6)carbonylamino; (C1-
C6)alkylsulfonylamino;
phenylsulfonylamino; and phenyl(C1-
C6)alkylcarbonyl;

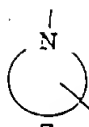
R², R³, A¹, A², X, Y or Z are each as defined
in claim 3,

l is an integer of 0,
m is an integer of 0,
n is an integer of 0.

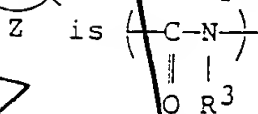
5. A compound of claim 4,
wherein R¹ is piperidyl,

A¹ is lower alkylene or lower alkanyl-ylidene,

A³ is lower alkylene which may have lower alkyl, lower alkynyl or lower alkanoylamino,



is piperidyl,




R², R³, A², Y, l, m and n are each as defined in claim 4.

6. A compound of claim 5, wherein R³ is hydrogen,

A¹ is lower alkylene,

A³ is lower alkylene having lower alkanoylamino,

R¹, A², , X, Y and Z are each as defined in claim 5

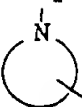
7. N-[(R)-1-{3-(4-piperidyl)propionyl}-3-piperidylcarbonyl]-2(S)-acetylamino-β-alanine or its hydrochloride

8. A compound of claim 5, wherein R³ is hydrogen,

A¹ is lower alkylene,

A³ is lower alkylene having lower alkynyl,

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R¹, R², A², , X, Y, Z, l, m and n are each as defined in claim 5.

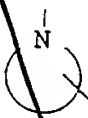
9. N-[(R)-1-{3-(4-piperidyl)propionyl}-3-piperidylcarbonyl]-3(S)-ethynyl-β-alanine

10. A compound of claim 4,

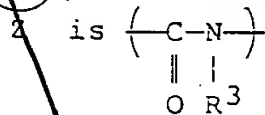
wherein R¹ is piperidyl,

A¹ is lower alkylene or lower alkanylylidene,

A³ is lower alkylene which may have lower alkyl, lower alkynyl or lower alkanoylamino,



is morpholinyl,




R², R³, A², Y, l, m and n are each as defined in claim 4.

11. A compound of claim 5,

wherein R³ is hydrogen,

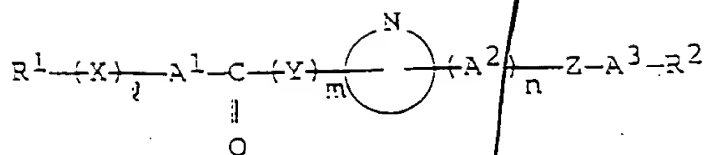
A¹ is lower alkylene,

A³ is lower alkylene,

R¹, A², , X, Y and Z are each as defined in claim 10.

12. N-[4-{3-(4-piperidyl)propionyl}-2-morpholinylcarbonyl]-β-alanine or its hydrochloride

13. A process for preparing a compound of the formula :



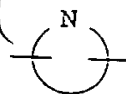
wherein R^1 is N-containing cycloalkyl which may have one or more suitable substituent(s),

R^2 is carboxy or protected carboxy,

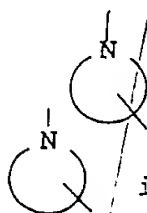
A^1 is lower alkylene, lower alkanyl-ylidene or lower alkenylene, each of which may have one or more suitable substituent(s),

A^2 is lower alkylene,

A^3 is lower alkylene which may have one or more suitable substituent(s),



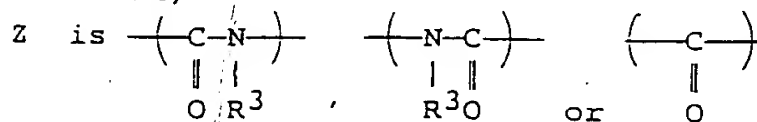
is a group of the formula:



(wherein $\overset{\overset{N}{\circlearrowleft}}{\quad}$ is N-containing heterocyclic group which may have one or more suitable substituent(s)),

X is O, S or NH,

Y is NH,

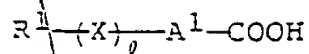


(wherein R^3 is hydrogen or lower alkyl),

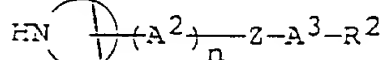
l, m and n are each the same or different an integer of 0 or 1,

and a salt thereof, which comprises

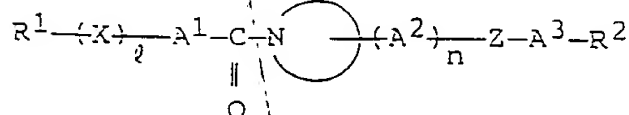
(i) reacting a compound of the formula :



wherein R^1 , A^1 , X and ℓ are each as defined above,
or its reactive derivative at the carboxy group
or a salt thereof, with a compound of the formula :

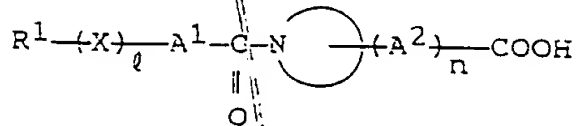


wherein R^2 , A^2 , A^3 , $HN \bigcirc$, Z and n are each as
defined above,
or its reactive derivative at the amino group or a
salt thereof, to give a compound of the formula :

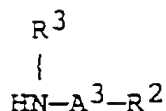


wherein R^1 , R^2 , A^1 , A^2 , A^3 , $-N \bigcirc$, X , Z , ℓ and n
are each as defined above,
or a salt thereof, or

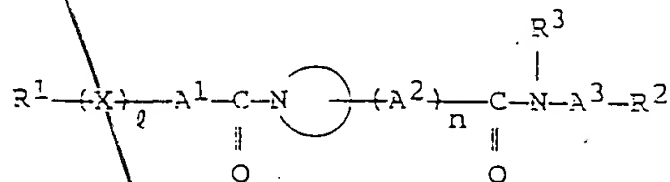
(ii) reacting a compound of the formula :



wherein R^1 , A^1 , A^2 , $-N \bigcirc$, X , ℓ and n are each as
defined above,
or its reactive derivative at the carboxy group
or a salt thereof, with a compound of the formula :

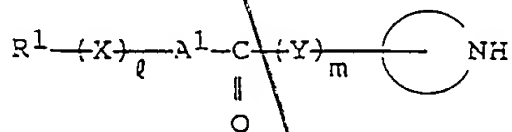


wherein R^2 , R^3 and A^3 are each as defined above, or its reactive derivative at the amino group or a salt thereof, to give a compound of the formula :

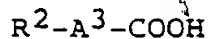


wherein R^1 , R^2 , R^3 , A^1 , A^2 , A^3 , $-N \bigcirc$, X , ℓ and n are each as defined above, or a salt thereof, or

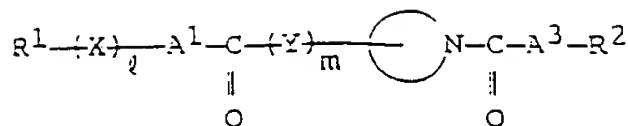
(iii) reacting a compound of the formula :



wherein R^1 , A^1 , $NH \bigcirc$, X , Y , ℓ and m are each as defined above, or its reactive derivative at the amino group or a salt thereof, with a compound of the formula :

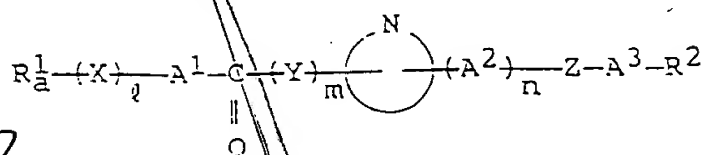


wherein R^2 and A^3 are each as defined above, or its reactive derivative at the carboxy group or a salt thereof, to give a compound of the formula :

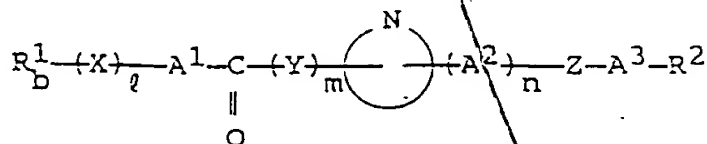


wherein R^1 , R^2 , A^1 , A^3 , $\text{N}(\text{C})$, X , Y , ℓ and m are each as defined above, or a salt thereof, or

(iv) subjecting a compound of the formula :



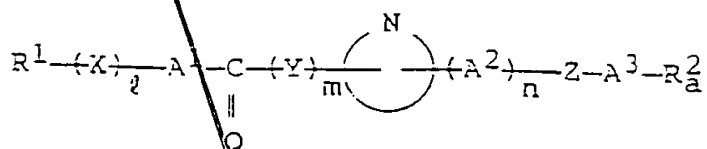
wherein R^2 , A^1 , A^3 , $\text{N}(\text{C})$, X , Y , Z , ℓ , m and n are each as defined above, and R_a^1 is N-containing cycloalkyl having amino protective group, which may have one or more suitable substituent(s), or a salt thereof, to elimination reaction of the amino protective group, to give a compound of the formula :



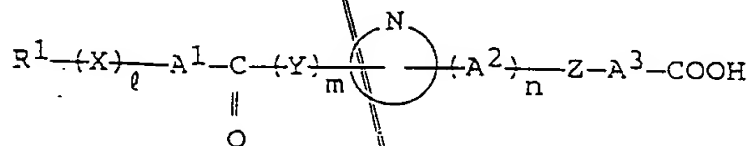
wherein R^2 , A^1 , A^2 , A^3 , $\text{N}(\text{C})$, X , Y , Z , ℓ , m and n are each as defined above, and

R^1_b is N-containing cycloalkyl which
may have one or more suitable
substituent(s),
or a salt thereof, or

(v) subjecting a compound of the formula :

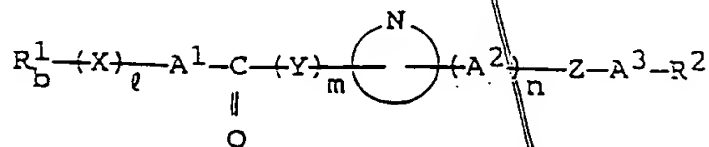


wherein R^1 , A^1 , A^2 , A^3 , N , X , Y , Z , ℓ , m and n
are each as defined above, and
 R^2_a is protected carboxy,
or a salt thereof, to elimination reaction of carboxy
protective group, to give a compound of the formula :



wherein R^1 , A^1 , A^2 , A^3 , N , X , Y , Z , ℓ , m and n
are each as defined above, or a salt
thereof, or

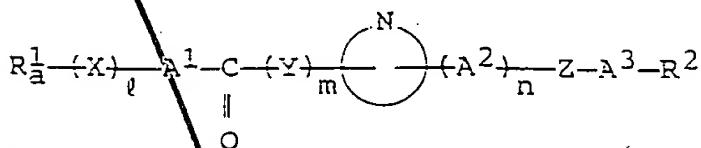
(vi) subjecting a compound of the formula :



wherein R^2 , A^1 , A^2 , A^3 , $\text{---} \bigcirc \text{---}$ (N), X , Y , Z , ℓ , m and n are each as defined above, and

R^1_D is N-containing cycloalkyl which may have one or more suitable substituent(s),

or a salt thereof, to protecting reaction of amino, to give a compound of the formula :

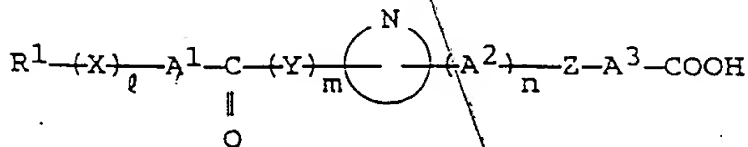


wherein R^2 , A^1 , A^2 , A^3 , $\text{---} \bigcirc \text{---}$ (N), X , Y , Z , ℓ , m and n are each as defined above, and

R^1_A is N-containing cycloalkyl having amino protecting group, which may have one or more suitable substituent(s),

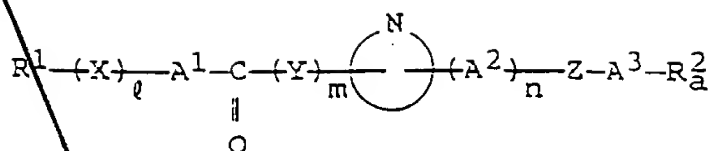
or a salt thereof, or

(Vii) subjecting a compound of the formula :



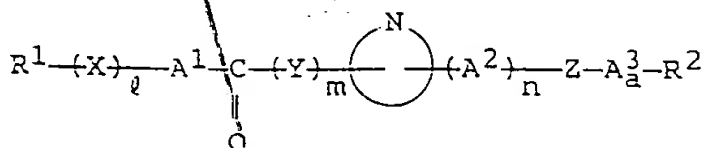
wherein R^1 , A^1 , A^2 , A^3 , $\text{---} \bigcirc \text{---}$ (N), X , Y , Z , ℓ , m and n are each as defined above,

or its reactive derivative at the carboxy group or a salt thereof, to protecting reaction of the carboxy, to give a compound of the formula :



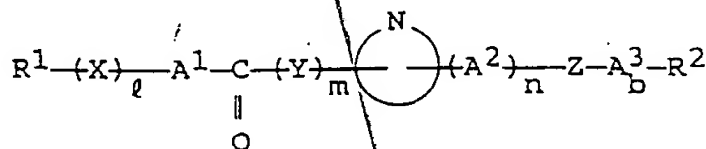
wherein R^1 , A^1 , A^2 , A^3 , $\overset{\text{N}}{\text{---}}$, X , Y , Z , ℓ , m and n are each as defined above, and R^2_a is protected carboxy, or a salt thereof, or

(viii) subjecting a compound of the formula :



wherein R^1 , R^2 , A^1 , A^2 , $\overset{\text{N}}{\text{---}}$, X , Y , Z , ℓ , m and n are each as defined above, and

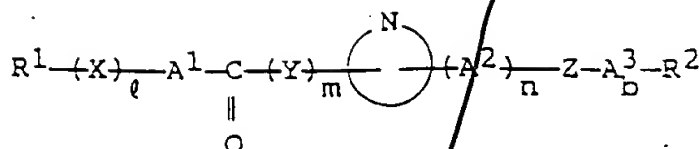
A^3 is lower alkylene having protected amino or a salt thereof, to elimination reaction of amino protective group, to give a compound of the formula :



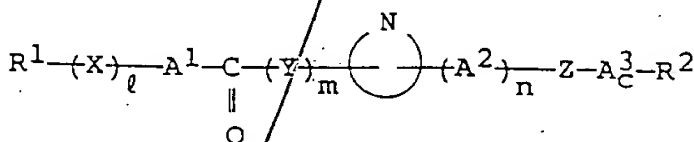
wherein R^1 , R^2 , A^1 , A^2 , $\overset{\text{N}}{\text{---}}$, X , Y , Z , ℓ , m and n are each as defined above, and

A^3_b is lower alkylene having amino or a salt thereof, or

(ix) subjecting a compound of the formula :



5 wherein R^1 , R^2 , A^1 , A^2 , $\overset{\overset{N}{\curvearrowright}}{(\quad)}$, X , Y , Z , ℓ , m and n are each as defined above, and A^3_D is lower alkylene having amino, or a salt thereof, to acylation reaction of amino, to give a compound of formula :



15 wherein R^1 , R^2 , A^1 , A^2 , $\overset{\overset{N}{\curvearrowright}}{(\quad)}$, X , Y , Z , ℓ , m and n are each as defined above, and A^3_C is lower alkylene having acylamino, or a salt thereof.

14. A pharmaceutical composition which comprises, as an active ingredient, a compound of claim 1 or a pharmaceutically acceptable salt thereof in admixture with pharmaceutically acceptable carriers or excipients.

15. Use of a compound of claim 1 or a pharmaceutically acceptable salt thereof for the manufacture of a medicament.

16. A compound of claim 1 or a pharmaceutically acceptable salt thereof for use as a medicament.

17. A method for the prevention and/or the treatment of

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diseases caused by thrombus formation; restenosis or reocclusion; the thrombus formation in case of vascular surgery, valve replacement, extracorporeal circulation or transplantation; disseminated intravascular coagulation; thrombotic thrombocytopenic; essential thrombocytosis; inflammation; immune diseases; or metastasis; or for the adjuvant therapy with thrombolytic drug or anticoagulant; which comprises administering a compound of claim 1 or a pharmaceutically acceptable salt thereof to a human being or an animal.

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